KLIMENKO, V.L.; TSYRKIN, Ye.B.

"On the economic aspects of the chemical industry of the U.S.S.R." by N.P.Fedorenko, E.S.Savinskii. Reviewed by V.L.Klimenko, E.B. TSyrkin. Zhur.VKHO 6 no.5:581-582 '61. (MIRA 14:10)
(Chemical industries) (Fedorenko, N.P.) (Savinskii, E.S.)

S/064/61/000/008/001/003
B110/B208

AUTHORS: Osadchenko, I. P., Klimenko, V. L.

TITLE: Prospects of the production of raw materials for the petrochemistry in the petroleum-processing factories of the USSR

PERIODICAL: Khimicheskaya promyshlennost', no. 8, 1961, 1 - 6

TEXT: In 1958, the plenary session of the Central Committee of the CPSU decided to develop the chemical industry on the basis of natural gas and of products of petrochemical processing. Petrochemical production methods permit a reduction of the prime cost of various substances to one-tenth, as compared with the production from food or vegetable raw materials. For this reason, the production of petrochemical raw materials which comply with the ГОСТ (GOST) requirements, and which are directly used for synthesis must be provided for in NPZ and in the gas-processing industries, in addition to fuel production. The following is to be produced by NPZ: 1) pure olefins for the production of polyethylene, ethylene oxide, ethyl benzene, polypropylene, synthetic glycerol, phenol, acetone, butadiene, etc.; 2) aromatics: benzene, xylene for the production of cyclohexane, ethyl benzene, isopropyl benzene, terephthalic acid,

Card 1/5

Prospects of the production of ...

etc.; 3) higher liquid and solid paraffins for the production of fatty acids, alcohols, amines, dicarboxylic acids, etc.; 4) hydrogen and synthesis gas. 1) According to studies of "Giprokauchuk", propane and butane are the most economic sources of raw materials for ethylene and propylene. For the pyrolysis of liquid distillates (low-octane gasoline, middle petroleum fraction, dearomatised reforming catalysates) reaction vessels with super-heated vapor are most economic. Butylene and amylene fractions of pyrolysis resin are by-products of pyrolysis. When liquid products are used, the pyrolysis plants are established in NPZ, which, according to calculations of VNIINeftekhim, considerably improves the technical and economic working indices of NPZ. According to work carried out by NIISS and "Giprokauchuk", pyrolysis of gasoline under mild conditions is important for butylene and butadiene production. Alcohols were synthesized by Neftekhim on the basis of C_6-C_9 olefins contained in gasolines, which were good plasticizers. In addition to the utilization of thermo-cracking gasolines, some NPZ will have to provide for the production of trimers of propylene and of propylene-butylene copolymers. In works producing high-melting paraffins, cracking is suitable for obtaining α-olefins. Successful experiments of this kind were carried out by VNII NP. 2) In the production of aromatics, the catalytic reforming as developed by "VNIINeftekhim" plays an

Prospects of the production of ...

important part. It reduces the benzene price by 50%. The first Soviet reforming plant started to work in 1958. By 1965, 35% of benzene and more than 80% of xylene shall be produced in this way. The yield of aromatics depends on the content of naphthene hydrocarbons according to G. N. Maslyanskiy. Purification with water increases the benzene yield by 10% at a 50% catalyst consumption. Extraction of aromatics by selective diethylene glycol has the following advantages: It increases the yield of commercial gasoline by 15%; it reduces the costs of investment per ton of aromatics by 40%; it reduces the net costs by about 25-30%. Experiments are carried out by "VNIINeftekhim" with triethylene glycol, Sulfolane, ethylene carbonate, or propylene carbonate as selective solvents. Some 100,000 t pyrolysis resin for the production of aromatics (50% aromatic content) shall be produced in 1965. A 32% benzene yield is obtained by a process for pyrolysis resin devised by A. A. Glazunov et al. (Ref. 7: Koks i khimiya, No. 1, 44 (1960)) in the Yenakiyevskiy koksokhimicheskiy zavod (Yenakiyevo Coke-chemical Plant), which uses liquid coking products. In the next years coke-chemical plants will process pyrolysis resin and produce benzene homologs, which is now in the development stage. Catalytic reforming makes it possible to obtain xylenes that are 2.5 times less expensive than those obtained by coke processing. When using the

Prospects of the production of ...

fractions 105 - 140°C and 120 - 140°C, one obtains (in % by weight): ethyl benzene: 15 - 20; o-xylene: 18 - 20; m-xylene: 40 - 45; p-xylene: 18 - 20. 3) In the USSR, large paraffin quantities are oxidized to fatty acids and alcohols. In addition to Drogobych and Grosnyy paraffins so-called liquid paraffins, obtained by carbamide deparaffinization of Diesel oils, shall be oxidized. Depending on the oxidation conditions, one obtains fatty acids, dicarboxylic acids, aliphatic alcohols, and surface-active sulfates of primary alcohols. Technological plants for the production of liquid paraffins were planned by the Institut neftekhimicheskikh protsessov (Institute of Petrochemical Processes of the AS Azerbaydzhanskaya SSR) and VNII NP. Improved refining methods for Diesel oils will give more liquid paraffins. These are also obtained from filtrates of Grosnyy petroleum. 4) Synthesis gas ($CO + H_2$) for oxosynthesis and alcohol synthesis is obtained together with hydrogen by means of catalytic conversion. "Giprogastopprom" designed a hydrogen production plant producing 5000 tons a year referred to 100% H_2, on which vapor conversion of hydrocarbons on Ni catalyst, CO conversion on Fe catalyst, and elution of CO_2 shall be performed. 1 Nm^3 of H_2 costs 1.5 - 2.0 kopecks. There are

Card 4/5

Prospects of the production of ... S/064/61/000/008/001/003
B110/B208

1 figure, 6 tables, and 21 references: 18 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language publications read as follows: Ref 14: Petrol. Proc., No. 2, 87 (1957); Ref 19: J. Chrones, J. James, J. Inst. Petrol., 46, 337 (1960).

Card 5/5

OSADCHENKO, I.R.; KLIMENKO, V.L.

Prospects for the production of raw materials for petroleum chemistry in the petroleum refineries of the U.S.S.R. Khim.prom. no.8:519-525 Ag '61. (MIRA 14:8)
(Petroleum products)

KLIMENKO, V.L., inzhener-ekonomist

Efficient production of monoolefins from various materials. Trudy LIEI no.36:52-64 '61. (MIRA 15:1)
(Olefins)

OSADCHENKO, I.R., red.; MASLYANSKIY, G.N., red.; BURSIAN, N.R., red.; POKORSKIY, V.N., red.; KLIMENKO, V.L., red.; MOLDAVSKIY, B.L., red.; SIDOROV, V.A., red.; POKUNKOVA, O.G., red.; TOMARCHENKO, S.L., red.; POMKINA, T.A., tekhn. red.

[Production of benzene] Proizvodstvo benzola; po materialam Vsesoiuznogo nauchno-tekhnicheskogo soveshchaniia 1960 g. Leningrad, Goskhimizdat, 1962. 275 p. (MIRA 16:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (for Maslyanskiy, Klimenko). (Benzene)

KLIMENKO, V.L.; RUDKOVSKIY, D.M.; RYABUKHOVA, S.F.

Methods of preparing higher aliphatic alcohols (C_7 - C_{10}) and their technological and economic evaluation. Khim.prom. no.1:8-10 Ja '62. (MIRA 15:1)

(Alcohols)

RUDKOVSKIY, D.M.; KLIMENKO, V.L.

Production of propionic aldehyde and certain syntheses based on it. Khim.prom. no.7:484-486 Jl '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

(Propionaldehyde)

S/191/62/000/008/011/013
B124/B180

AUTHORS: Rudkovskiy, D. M., Ketslakh, M. M., Brunshteyn, B. A., Klimenko, V. L.

TITLE: New polyatomic alcohols

PERIODICAL: Plasticheskiye massy, no. 8, 1962, 52-54

TEXT: On the example of production and application of trimethylol ethane and trimethylol propane in the USA, corresponding actual results and planned production in the USSR are discussed. Far-reaching possibilities of practical application in many branches of industry, and improved and more economic procedures are mentioned. In many cases, the use of trimethylol ethane and trimethylol propane instead of glycerin and pentaerythrite is of economic interest because of the reduced consumption of expensive raw materials. Basic investigations in this direction were made in the USSR by VNIINeftekhim in 1950. There are 2 tables. The three English-language references are: Ind. Eng. Chem. 50, No. 8 (1958); Chemistry in Canada, 12, No. 11, 38-42 (1961); Chem. Eng., No. 9, 41 (1961).

Card 1/1

KLIMENKO, V.L.; TSYRKIN, Ye.B.

"Economic aspects of the industry of synthetic materials."
Reviewed by V.L. Klimenko, E.B. Tsyrkin. Khim.prom.
no.9:622-623 Ag '62. (MIRA 15:9)
(Synthetic products)

ZHUNKO, V.I.; KLIMENKO, V.L.

Development of designs of tubestill heaters for the conversion of hydrocarbon gases. Khim.i tekh.topl.i masel 7 no.6:50-54 Je '62. (MIRA 15:7)
(Petroleum refineries—Equipment and supplies)

ZELENIN, N.I., KLIMENKO, V.L.

Evaluating the possibilities of separating olefins from chamber furnace gas. Khim. i tekh. gor. slan. i prod. ikh perer. no.11: 337-342 '62. (MIRA 17:3)

1. Leningradskiy inshenerno-ekonomicheskiy institut.

BRUNSHTEYN, B.A.; KLIMENKO, V.L.; RYABUKHOVA, S.F.

Improve the technical and economic indices of the production of synthetic fatty acids. Masl.-zhir.prom. 29 no.9:31-34 S '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

FISHMAN, M.A.; KLIMENKO, V.I.; NEVEDROV, K.Ya.

Automatic quality control of zinc electrolytes. TSvet.met. 36 no.2:30-32 F '63. (MIRA 16:2)
(Zinc--Electrometallurgy) (Electrolytes)

BRUNSHTEYN, B.A.; KLIMENKO, V.L.

Technical and economic evaluation of various methods of production of petroleum paraffins. Khim.i tekh.topl.i masel 8 no.8:33-37 Ag '63. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

(Petroleum--Refining) (Paraffins)

BRUNSHTEYN, B.A.; GORENBURG, V.P.; KLIMENKO, V.L.; FUKS, Ye.Sh.; TSYRKIN, Ye.B.

Optimalizing the production of automobile gasoline in a petroleum refinery. Neftepar. i neftekhim. no.12:3-7 '63. (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

BRYZGALOVA, Ye.V.; KLIMENKO, V.L.

Possiblity of the utilization of shale gas for the production of chemicals. Trudy LIEI no. 46:27-33 '63. (MIRA 17:6)

KLIMENKO, V.L.; TSYRKIN, Ye.B.

Use of butylenes in petroleum chemistry. Trudy LIZI no. 46: 34-43 '63. (MIRA 17:6)

POLYMESTOVA, K.; KLIMENKO, V.L.; AUEZOV, Zh.

Removal of arsenic from converter dusts in the form of a commercial calcium arsenate. TSvet. met. 36 no.11:35-38 N '63. (MIRA 17:1)

KLIMENKO, V.L.; KUDKOVSKIY, D.M.; TSYPKIN, Ye.B.

Present status of and prospects for the development of oxo-synthesis abroad. Neftepererab. i neftekhim. no.3:47-52 '63. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

KLIMENKO, V.L.; FUKS, Ye.Sh.; TSYRKIN, Ye.B.

Optimization of oxo-synthesis. Neftepor. i neftekhim. no.6:29-33 '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

KLIMENKO, V.I.; KURKOVSKIY, D.M.; TSYRKIN, Ye.B.

Production and use of butyl alcohols and butyraldehydes. Khim.prom. 41 no.4:23-24 Ap '65. (MIRA 18:8)

BRUNSHTEYN, B.A.; IVANOV, A.G.; KLIMENKO, V.L.; TSYRKIN, Ye.B.

Distribution of expenditures for acetylene and ethylene in their simultaneous production. Neftepor. i neftekhim. no.4:28-30 '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

KLIMENKO, V.L.; TSYRKIN, Ye.B.; KHIZHNYAK, V.F.; MASLYANSKIY, G.N.; BURSIAN, N.R.

Efficiency of the process of the isomerization of gasoline fractions. Khim. i tekh. topl. i masel 10 no.7:50-53 Jl '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

KLIMENKO, V.L.

Select better preceding crops for winter wheat. Zemledelie 27 no.8:24-26. Ag '65. (MIRA 18:11)

1. Direktor uchebnogo khozyaystva "Mumrovskoye", Atkarskogo rayona, Saratovskoy oblasti.

MUSHENKO, D.V.; KLIMENKO, V.L.

Using the residues of sour crude oils. Khim. i tekh. topl. i masel 9 no.9:1-7 S '64. (MIRA 17:10)

BILETS'KIY, M.L., inshener; DATSENKO, I.K., kandidat tekhnicheskikh nauk; KLIMENKO, Y.M., inshener; LAMASH, I.D., inshener; MAGULA, G.E.; PAVLENKO, V.A., inshener; CHUMACHENKO, T., veduchiy redaktor; GOLOVCHENKO, G., tekhnicheskiy redaktor

[Manual on the use of automobiles on collective farms] Posibnyk po ekspluatatsii avtomobiliv u kolhospakh. Kyiv, Derzh. vyd-vo tekhn. lit-ry URSR, 1956. 370 p. (MLRA 10:2)
(Collective farms) (Automobiles)

CHEKMAREV, A.P., professor; PAVLOV, V.L., inzhener; KLIMENKO, V.M., kandidat tekhnicheskikh nauk; ISHKANOV, G.B., inzhener; BORTSOV, Ye.M., inzhener; VASHCHILO, P.A., inzhener.

Intensifying the reduction operation in the 1150 blooming mill. Stal' 15 no.10:916-921 O '55. (MIRA 9:1)

1.Deystvitel'nyy chlen AN USSR (for Chekmarev. 2.Institut chernoy metallurgii AN USSR, zavod imeni Dzerzhinskogo, Tekhnicheskoye upravleniye Ministerstva chernoy metallurgii USSR.
(Rolling mills)

Klimenko, V.M.

137-1957-12-23642

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 114 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: The Widening of Metal Rolled in Blooming Mills (Ushireniye metalla pri prokatke v blyumingakh)

PERIODICAL: Tr. Nauchno-tekh. o-va chernoy metallurgii. Ukr. resp. pravl., 1956, Vol 1, pp 109-118

ABSTRACT: The non-uniform deformation encountered in the rolling of metal of large thickness complicates the solution of the question of the widening (W) and hampers the acquisition of reliable relationships essential for rational roll design, reduction rates, etc. The widening and the shape of the side surfaces of the rolled metal were investigated on the blooming mills of the Magnitogorsk combine, the Kuznetskiy combine, the Petrovskiy, "Dneprospetsstal'" (reduction stand of 825 mm), "Krasnyy Oktyabr'" and the Dzerzhinsky plants, as well as on the slab mill of the "Zaporozhstal'". 30 grades of carbon and alloyed steel were investigated. For the purposes of measuring the width and the shape of the side surfaces of the ingots special multi-point sliding calipers with movable dowels were constructed. With it, curves

Inst Ferrous Metallurgy AS UkrSSR

Card 1/2

The Widening of Metal Rolled in Blooming Mills

of the side surfaces were plotted which permitted judging the nature of the non-uniform deformation of the ingot as well as the filling in of the roll grooves with metal. Simultaneously with the measurements of W a record was kept on the reductions and the temperatures of the metal which were measured by an optical pyrometer. The W was determined at mid-height, and also at its maximum. The maximum index of W is 0.259-0.46 for a smooth roll and 0.248-0.53 for grooves. The highest indices of W were obtained for the alloyed steels ShKh15, 35KhGSA, 30KhGSNA and the lowest for the rimmed steel 3. The experimental data show that none of the recommended existing formulas for the determination of the W in rolling of thick metal, in particular when rolled in blooming mills, may be employed because they do not take into account the non-uniformity of deformation.

B. Ye.

1. Rolling mills-Modifications 2. Rolled metals-Deformation

Card 2/2

SOV/137-57-1-580

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 76 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: Gripping of Metal in Box Passes (Zakhvat metalla v pryamougol'nykh kalibrakh)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR, 1956, Vol 10, pp 64-89

ABSTRACT: An item of interest in the process of gripping of metal by the rolls are box passes (BP) which restrict the spread of the metal and which have a value of $a = B/b_2 \geq 1$, where B is the width of the billet and b_2 the width of the bottom of the BP. An analysis of BP's in which $a > 1$ is necessary from the point of view of the intensity of the rolling process, because if the value of B exceeds the value of b_2 by even a small amount the angle of bite will increase by as much as $3 - 5^{\circ}$. The process of gripping of metal (M) in BP's with an $a > 1$ starts with the contact between the sides of the rolled piece and the sides of the BP, as a result of which the following forces are created within the BP: A force which is due to friction of the M against the sides of the BP and which tends to pull in the M, and a normal and a radial force which

Card 1/2

tend to expel the M. As the area of the contact between the sides of the BP's and the M is increased, the resulting friction forces which facilitate gripping and the forceful advance of the M into the BP's increase, also. The geometric factors which improve gripping may be expressed by the relationship $b_1 > B > b_2$, where b_1 is the width of the BP at the surface of the roll. Decreasing the draft of the BP's reduces the effect of the sides of the BP's on conditions of gripping. The opposite is true if the draft is increased, because then the spread of M will create lateral friction forces which will facilitate gripping. By employing partial or full squeezing of the strip (in closed BP's), the permissible angles of bite may be increased thereby improving the productivity of the roughing stands. Equations are derived which permit the determination of the limiting values of angles of bite dur.ng rolling of strip in BP's. The relationship between the coefficient of friction and the temperature of rolling was established experimentally, and an equation representing this relationship was derived. Experiments confirm the fact that the permissible angle of bite increases with increasing degrees of squeezing of the M in the BP's during gripping. Owing to the action of lateral friction forces during rolling involving squeezing, the angles of bite may be increased by 10-12°. Basically, an increase in the angle of bite is a function of the area in contact with the sides of the BP's.

Card 2/2

V. Zh.

KLIMENKO, V.M.

137-58-1-593

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 93 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: Intensifying the Process of Rolling in a Blooming Mill (Intensifikatsiya protsessa prokatki na blyuminge)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1956, Vol 10, pp 357-371

ABSTRACT: The results of a comprehensive investigation by the rolling department of the IChM of the Academy of Sciences of the Ukrainian SSR of the following blooming mills is presented: MMK Nr 2 and Nr 3, KMK, the Petrovskiy Works, Dneprospetsstal', Stalingrad, and the Dzerzhinskiy Works. The investigations included determination of spread, pressure of the metal on the rolls, and power consumption in rolling (R) and an analysis of reduction and speed practices. To make possible an evaluation of the intensity of the R process on mills of identical model, an index of intensity is advanced; $P_i = 10G \cdot \log \mu_g / T$, where G is the weight of the bloom in t, μ_g is the overall elongation coefficient, T is the time for the R cycle in seconds. This

Card 1/2

137-58-1-593

Intensifying the Process of Rolling in a Blooming Mill

index is proportional to the R power. See RzhMet, 1957, Nr 12, 22805.

M.Z.

1. Rolling mills-Operation--Analysis 2. Metals--Processing--Mathematical analysis

Card 2/2

SOV/137-58-11-22329

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 69 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: Rolling With Clamping (Prokatka s zashchemleniyem)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii. Ukr. resp. pravl. 1957, 'ol 2, pp 69-91

ABSTRACT: An in [illegible]ation is made into the influence of lateral forces of friction up[illegible]e capacity of the rolls to bite in steady-state and transient rolling processes in square passes with various degrees of clamping, determined by the ratio $a=B/b_2>1$, where B is the width of the billet and b_2 is the pass bottom width. It is shown that in order for the rolls to contact (C) the strip and for a process of rolling with clamping to continue, it is necessary that the inequality $\alpha_1 \leq K\beta$ be maintained, in which α_1 is the angle of contact (bite), determined by the center of gravity of the crushed side surface of the metal (Me); β is the angle of friction; K is the coefficient of C, determined by the equation for the equilibrium of forces under limiting conditions of C. Upon C in square passes in which $a>1$, the strip touches the sides of the pass before its bottom, and this is

Card 1/2

why the edges of the strip are crushed. The degree of crushing and the coefficient of friction of Me and rolls governs the magnitude of the nipping forces at the initial instant of C. Formulas are offered for defining the surface areas over which crushing of the side edges occurs, and also for determining the friction during C. The crushing of the side edges of the strip is the greater, the higher the kinetic energy of the strip, i.e., the greater its velocity V_h and mass. It is evident from the experimental data that the greater the clamping of the Me during C the greater the permissible angle of contact. Theoretical conclusions and experimental data show that angles of contact may be increased by 10-12° if C on the Me is accompanied by clamping. The rolling of Me in passes with clamping upon C is one of the major potential sources for increasing the output capacity of rolling mills. The results of the investigation may be used to increase angles of C in present groovings and in calculating possibilities for increasing them in groove designs yet to be developed.

V. Zh.

124-58-9-10373

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 138 (USSR)

AUTHOR: Klimenko, V.M.

TITLE: How to Determine the Deformability of a Metal and the Stress Distribution During the Rolling of Large Ingots (K voprosu ob opredelenii deformiruyemosti metalla i raspredelenii napryazheniya pri prokatke krupnykh slitkov)

PERIODICAL: Tr. In-ta chernoy metallurgii. AN UkrSSR, 1957, Vol 11, pp 86-97

ABSTRACT: Results are presented on the experimental determination of the depth of diffusion of plastic deformations, also its relationship with the magnitude of the degree of reduction. This relationship, in the case of carbon steels, can be expressed in a first approximation by a second-order curve. In the rolling of ingots of alloy steel no great difference in deformability could be detected; this, apparently, is attributable to the decrease in the differences in mechanical properties between different steels at elevated temperatures. Other considerations adduced pertain to the character of the stress distribution in ingots subjected to rolling. 1. Metals--Stresses 2. Metals--Deformation 3. Rolling mills--Applications

Card 1/1

V. A. Lomakin

KLIMENKO, V.M.

137-58-2-2785

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 83 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: Computing Optimum Diameters for Blooming-mill Rolls (Ob opredelenii velichiny diametra valkov blyuminga)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR, 1957, Vol 11, pp 98-104

ABSTRACT: A study was made of the spread and nonuniformity of the vertical deformation in large ingots caused by blooming-mill and slabbing-mill rolls. Equations were worked out which state the relationship of the index of spread to the h_{cp}/l_d ratio (h_{cp} being the mean height of an ingot cross section in the deformation area, l_d the length of the deformation area). The equations are the following: $K_{max} = \Delta b_{max} / \Delta h$ and $K_{center} = \Delta b_{center} / \Delta h$; here Δb_{max} is the absolute maximum spread at any height level of the ingot (wherein account is taken of the uneven vertical distribution of the deformation); Δb_{center} is the absolute spread at the central height level of the ingot; Δh is the absolute vertical reduction of the ingot. These equations have made it possible to determine the maxi-

Card 1/2

137-58-2-2785

Computing Optimum Diameters for (cont.)

mum spread at any height level and the spread at the central height level in carbon steel ingots being rolled into blooms and slabs. Formulae are given for computing optimum roll diameters for use in single-pass rolling of whole ingot sections.

V.D.

1. Rolling mills—Application 2. Rolls—Mathematics—Theory

Card 2/2

Klimenko, V. M.

137-1958-2-2774

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 81 (USSR)

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I., Chekhranov, V.D., Vorotyntsev, Yu.V., Shafran, I.K.

TITLE: A Study of an 1150-millimeter Blooming Mill (Issledovaniye blyuminga 1150 mm)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR 1957, Vol 11, pp 152-174

ABSTRACT: A comprehensive investigation of the performance of an 1150-millimeter blooming mill showed that the actual amount of widening that occurs in the rolling of blooms and slabs is significantly greater than the customary calculations would indicate. This error in computation of the widening led to a faulty distribution of the reduction during each of the rolling passes. Measuring the pressure of the metal on the rolls and the current in the armature of the motor revealed the availability of reserve power, which could be used to increase the reduction in a given pass in the blooming mill. The greatest specific pressure in the rolling of mild and medium-carbon steels was exhibited by killed steel MZ subjected to cold upsetting. Curves of specific power consumption for the rolling

Card 1/2

137-1958-2-2774

A Study of an 1150-millimeter Blooming Mill

operation included here, should be useful in the planning and control of power use in a blooming mill. Time-and-motion studies showed the extent of and reasons for differences in the duration of passes and of the intervening pauses among various operators and made possible recommendations for cutting down production time and down time in blooming-mill operation.

1. Rolling mills—Operation V.D.

Card 2/2

Klimenko, V.M.

137-1958-2-2790

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 84 (USSR)

AUTHORS: Klimenko, V.M., Meleshko, V.I., Chekhranov, V.D., Pavlov, V.L., Vorotyntsev, Yu.V., Bortunov, Ye.M., Nazarenko, Kh.N., Shafran, I.K.

TITLE: Increasing Blooming-mill Productivity (Uvelicheniye proizvoditel'nosti blyuminga)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR, 1957, Vol 11, pp 175-181

ABSTRACT: A comprehensive investigation of the performance of an 1150 mm blooming mill at the Dzerzhinskiy plant revealed ways in which blooming-mill output capacity could be increased. These required the adoption of certain technical and procedural measures, namely, improving the performance of the clamping gear and of the main power unit, better regulation of the heating of the metal, etc. Once this had been done and the new high-reduction runs had been inaugurated, the rolling operation could be shortened by 4-8 passes and 1-3 turnings, with a simultaneous 150 percent increase of the reduction per smooth roll and 200 percent increase of the reduction per grooved section roll. The quality of the rolling was not impaired, industrial tests showing that the incidence of rejects had declined from 1 percent to 0.6 percent.

V.D.

Card 1/1

1. Rolling mills—Production

Klimenko, V.M.

AUTHORS: Tuluyevskiy, Yu.N., and Klimenko, V.M. 133-12-7/26

TITLE: Thermal Regime Automatic Control System Applied in Open-hearth Furnaces of the Yenakiyevo Plant
(Skhema avtoregulirovaniya teplovogo rezhima martenovskikh pechey Yenakiyevskogo zavoda)

PERIODICAL: Stal', 1957, No.12, pp. 1086 - 1093 (USSR)

ABSTRACT: Technological scheme of an automatic control of thermal operating conditions of open hearth furnaces developed on the Yenakiyevo Works (Fig.2) and the operating results obtained are described. The scheme is based on the principle of maximum thermal load permissible at each moment of the heat according to conditions of combustion, heat transfer, available draught, etc. The automatic control of thermal load is attained by using pre-determined temperatures of the roof and air regenerators (taking into consideration actual technological conditions of the heat). Using this scheme, a decrease in specific fuel consumption of about 6% and an improvement in the output and durability of the furnace was obtained. The automatic control scheme was proposed by Yu.N. Tuluyevskiy. The following participated in the development of the scheme: M.N. Loshizin, B.Ye.Polykovskiy, V.P. Shaposhnikov, N.E. Odintsov, S.I. Konalov, D.P. Lobkovskiy and others. There are 7 figures, 1 table

Card1/2

133-12-7/26

Thermal Regime Automatic Control System Applied in Open-hearth Furnaces of the Yenakiyevo Plant

and 4 Slavic references.

ASSOCIATION: Yenakiyevo Metallurgical Works (Yenakiyevskiy metallurgicheskiy zavod)

AVAILABLE: Library of Congress

Card 2/2

SOV/137-58-9-18964

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 115 (USSR)

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I.

TITLE: Roll-separating Pressure in Rolling on Blooming Mills (Davleniye metalla na valki pri prokatke na blyumingakh)

PERIODICAL: V sb.: Prokatn. i trub. proiz-vo. Moscow, Metallurgizdat, 1958, pp 92-108

ABSTRACT: Investigations have yielded data on total and specific pressures in the rolling of carbon and alloy steels in a blooming mill. Pressure is measured by special hydraulic capsules, with strain gages. The investigation was carried out on blooming mills at various plants, wherein new pressure-sensitive capsules were made with allowance for the special features of the given mill. A graph of distribution of total roll-separating pressures among the passes in the rolling of steels of various grades is adduced. In order to clarify the possibility of increase in draft in the rolling of hard steels and to create a rational rolling flow sheet from the viewpoint of the stresses in the rolls, an analysis of the flexure under maximum pressures in each grooved roll is made. Graphs of the relationship

Card 1/2

SOV/137-58-12-24414

Translation from. Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 66 (USSR)

AUTHOR: Klimenko, V. M.

TITLE: Control by Clamping and Experimental Determination of Pressure on the Side Edges in Rectangular Passes (Kalibrovka s zashchemleniyem i eksperimental'noye opredeleniye davleniya na bokovyye grani v pryamougol'nykh kalibrakh)

PERIODICAL: Tr. Mezhvuz. nauchno-tekhn. konferentsii na temu "Sovrem. dostizh. prokatn. proiz-va". Leningrad, 1958, pp 95-102

ABSTRACT: Rolling (R) with clamping permits a significant increase in the angle of bite in unsteady conditions and improvement in the stability of a steady R process, leading to an increase in the output capacity of a rolling mill. Analysis by the method of R with clamping of the roll-pass grooves in the 800 billet mill of the Chelyabinsk Metallurgical Plant demonstrated the possibility of cutting in half the number of passes in the R of ingot and bloom. To determine the ratio between the total lateral and vertical forces and the mean unit pressures (P) and the effect upon these relationships of the degree of clamping in R, an investigation is made of the total and average unit P on the side edges of

Card 1/2

Inst. Ferrous Metallurgy AS UkSSR

Control by Clamping and Experimental Determination of Pressure on the Side (cont.)

box passes. The experiments were run on a 386-mm laboratory mill with samples of carbon St (0.05-0.3% C, 0.26-0.65% Mn, 0.05-0.21% Si). The mill rolls have box passes 42 mm high, with a roll opening of 2 mm and 60 mm width at the bottom of the pass. Pass runout: Nr 1 15%, Nr 2 25%. A dynamometer with wire strain-gage elements is mounted in the side edges of the passes. The vertical P are determined by dynanomometers set beneath the screwdowns. The P is recorded by oscillograph; the magnitude of the contact surface between metal and rolls is calculated by incomplete rollings done at different drafts. It is established that employment of clamping in R does not induce a large increase in the ratios of total vertical to total lateral P and of average vertical unit to mean lateral unit P, and at the same time makes it possible to increase contact angles by appx. 10%.

V. D.

Card 2/2

S/137/61/000/006/031/092
A006/A101

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I., Saf'yan, M.M., Chekhranov, V.D., Rabinovich, S.N.

TITLE: Pressure on rolls in rolling on a slab mill

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 3, abstract 6D13 ("Nauchn. tr. Dnepropetr. metallurg. in-t", 1960, no. 39, 93 - 103)

TEXT: The authors describe methods and results of investigating the pressure of metal on horizontal and vertical rolls of a slab mill at the "Zaporozhstal'" Plant. The investigation was carried out in 1954. The pressure on the rolls was measured with the aid of dynamometers. The results and data obtained from the rolling of soft-grade and stainless steel slabs show, that the magnitudes of full pressure on the horizontal rolls are relatively uniformly distributed over the passes. Maximum pressure when rolling stainless steel is 1,350 - 1,450 tons, and 900 - 1,400 tons when rolling soft steels. The distribution of pressure over the passes on vertical rolls without resetting them, is non-uniform; pressure is considerably higher in even passes than in odd ones. In rolling

Card 1/2

KLIMENKO, V.M.

(10)

PHASE I BOOK EXPLOITATION SOV/3611

Dnepropetrovsk. Metallurgicheskiy institut

Obrabotka metallov davleniyem (Metal Forming) Khar'kov, Metallurgizdat, 1960. 326 p. (Series: Its: Nauchnyye trudy, vyp. 39) 2,100 copies printed.

Ed.: A.P. Chekmarev; Ed. of Publishing House: R.A. Belina; Tech. Ed.: S.P. Andreyev.

PURPOSE: This collection of articles is intended for technical and scientific personnel in metallurgy and in mechanical engineering. It will also be of interest to designers of rolling equipment.

COVERAGE: This collection of articles treats the theory of rolling. It discusses such factors as the total and the unit pressures of the work on rolls, moments of rolling, forward slip, spread, etc. It also includes results obtained from investigation of roll quality, rolling of cast iron sheets, and other problems. No personalities are mentioned. References follow each article.

CHEKMAREV, A.P.; KLIMENKO, V.M.; TOTOROVSKIY, M.P.

Moments and power consumption in rolling with shaped grooves. Izv. vys.ucheb.zav.; chern.met. no.4:79-88 '61. (MIRA 14:4)

1. Institut chernoy metallurgii AN USSR.
(Rolling (Metalwork))

VOLOSHCHENKO, M.V.; DEYBAL, L.T.; KLIMENKO, V.M.; SHEYKO, A.A.; MALAFIY, G.V.

Production of cast iron crankshafts with spheroidal graphite for 60h 12/14 diesels. Lit. proizv. no.8:41-42 Ag '61. (MIRA 14:7)

(Iron founding) (Cranks and crankshafts)

CHEKMAREV, A.P.; KLIMENKO, V.M.

Metal pressure on the lateral faces of shaped grooves. Izv.vys. ucheb.zav.; chern.met. 4 no.9:95-103 '61. (MIRA 14:10)

1. Dnepropetrovskiy metallurgicheskiy institut i Institut chernoy metallurgii Akademii nauk USSR.
(Rolls (Iron mills))

CHEKMAREV, A.P.; KLIMENKO, V.M.

Experimental investigation of the distribution of unit pressures during rolling in shaped grooves. Izv. vys. ucheb. zav.; chern. met. 4 no.12:72-82 '61. (MIRA 15:1)

1. Dnepropetrovskiy metallurgicheskiy institut i Institut chernoy metallurgii AN USSR.

(Rolling (Metalwork))

CHEKMAREV, A.P., akademik; KLIMENKO, V.M., kand.tekhn.nauk

Total and unit pressure in rolling with cut grooves. Trudy Inst. chern. met. AN URSR 15:83-108 '61. (MIRA 15:2)

1. Akademiya nauk USSR (for Chekmarev).
(Rolls (Iron mills))
(Deformations (Mechanics))

CHEKMAREV, A.P., akademik; KLIMENKO, V.M., kand.tekhn.nauk;
TOPOROVSKIY, M.P., inzh.

Investigating force factors in rolling with cut grooves.
Trudy Inst. chern. met. AN URSR 15:109-124 '61. (MIRA 15:2)

1. Akademiya nauk USSR (for Chekmarev).
(Rolling mills)

KLIMENKO, V.M., kand.tekhn.nauk

Determining the width of slabs rolled on the barrel in blooming mills. Trudy Inst. chern. met. AN URSR 15:144-157 '61. (MIRA 15:2)

(Rolling (Metalwork))
(Ingots--Measurement)

KLIMENKO, V.M., kand.tekhn.nauk

Determining the height of rectangular grooves by the shape of lateral slab surfaces. Trudy Inst. chern. met. AN URSR 15:158-162 '61. (MIRA 15:2)

(Rolls (Iron mills))

KLIMENKO, V.M., kand.tekhn.nauk

Method of designing roll grooving with bite. Trudy Inst. chern. met. AN USSR 15:163-176 '61. (MIRA 15:2)
(Rolls (Iron mills))

VOLOSHCHENKO, M.V.; KLIMENKO, V.M.; SHEYKO, A.A.

Making castings of cupola-melted austenitic iron with spheroidal graphite. Nauch. trudy Inst. lit. proizv. AN URSR 11:55-57 '62. (MIRA 15:9)

(Cast iron)

BURDYUG, G.K.; VOLOSHCHENKO, M.V.; KLIMENKO, V.M.; SHEYKO, A.A.

Ultrasonic control of crankshafts made of nodular cast iron. Nauch. trudy Inst. lit. proizv. AN URSR 11:65-69 '62. (MIRA 15:9)

(Cast iron--Testing) (Ultrasonic testing)

KLIMENKO, V.M., kand.tekhn.nauk

Deriving formulas for pressure determination in rolling in section grooves. Trudy Inst. chern. met. AN URSR 17:67-82 '62. (MIRA 15:10)

(Rolling (Metalwork))

CEKMAREV, A.P. [Chekmarev, A.P.]; KLIMENKO, V.M.; TOPOROVSKI, M.P. [Toporovskiy, M.P.]

Lamination moments and energy consumption in the cutting gauges during lamination. Analele metalurgie 16 no.2:152-162 Ap-Je '62.

CHEKMAREV, A.P.; KLIMENKO, V.M.

Pressure and flow of metal in rolling with grooved rolls.
Izv. vys. uchab. zav.; chern. met. 6 no.9:92-102 '63.
(MIRA 16:11)

1. Institut chernoy metallurgii AN UkrSSR.

KLIMENKO, V.N.

Effect of stimulation of vascular interoceptors on morphologic composition of the blood. Vop. fiziol. no.5:43-51 '53. (MLRA 8:1)

1. Kiyevskiy meditsinskiy institut, kafedra patologicheskoy fiziologii.

(BLOOD,
picture, eff. of stimulation of vasc. interoceptors)
(BLOOD VESSELS, physiology,
eff. of stimulation of interoceptors on blood picture)

KLIMENKO, V. N.

"On the Question of the Efficacy of Vascular Interoreceptors on the Morphological Composition of the Blood," Vopr. Fiziologii, Moscow, No 6, pp 120-125, 1953

The slow administration of one milliliter of a solution of peptone in the common carotid artery of a rabbit resulted in an immediate rise of blood pressure and a decrease in the number of leukocytes. Ten minutes after the peptone administration the blood pressure dropped slightly and the number of leukocytes increased. In animals which had a splenectomy no rise of blood pressure occurred. A phase developed in which an increased number of leukocytes and a small percent of segmented cells were observed. The ratio of blood pressure and increase in the leukocyte number is called "linked" reaction and originates as the result of an irritation of the vascular interoreceptors and depends to some extent on expulsion of the deposited blood from the spleen. (RZhBiol, No 8, 1954)

SO: Sum, No. 606, 5 Aug 55

Chair Pathological Physiology, Kiev Med. Inst.

[redacted] (Kiyev)

Vladimir Valerianovich Podvysotskii; on the one hundredth anniversary of his birth. Vrach.delo no.6:659-661 Je '57. (MLRA 10:8)
(PODVYSOTSKII, VLADIMIR VALERIANOVICH, 1857-1913)

KLIMENKO, K. T., KLIMENKO, V. M.

Grafting: Orange

Influence of stock on the fertility and quality of fruit of the orange, Agrobiologiia No. 2, 1952 Gosudarstvennyy Nikitskiy Botanicheskiy sad imeni V. M. Molotova

SO: Monthly List of Russian Accessions, Library of Congress, July 1952 [redacted], Uncl.

KLIMENKO, K. T., KLIMENKO, V. N.

Citrus Fruits

Pollination of citrus trees with mixed pollen. Agrobiologiia No. 3, 1952
Gosudarstvennyy Nikitskiy botanicheskiy sad imeni V. M. Molotova

SO: Monthly List of Russian Accessions, Library of Congress, September 1952, Uncl.

KLIMENKO, V. N.

Orange

Formation of navel-type fruit in oranges. Agrobiologiya no. 1, 1953

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

KLIMENKO, V.N.

Development of oranges of unusual form. Bot.zhur. 38 no.2:248-251 Mr-Ap '53. (MLRA 6:6)

1. Gosudarstvennyy Nikitskiy botanicheskiy sad im. Molotova, Yalta. (Orange)

USSR/Cultivated Plants. Decorative Plants. M

Abs Jour : Ref Zhur-Biol., No 15, 68414

Author : Klimenko, V. N.
Inst : State Nikitsk Botanical Garden.
Title : Selecting Garden Roses at the Nikitsk Botanical Garden.

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 3-4, 37-39

Abstract : N. D. Kostetskiy, the Nikitsk Botanical Garden's leading worker in the field of rose selection, crossbred hybrid tea-roses with tea-roses and with perpetual, pyrenees, polyantha, rugose, and wichuria roses. Of the best varieties which were developed by N. D. Kostetskiy, 14 are listed; they have been widely distributed in the USSR. For the po-

Card : 1/3

USSR/Cultivated Plants. Decorative Plants. M

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68414

riod between 1940 and 1955, this work of rose selection ceased. In 1955, the author of the article resumed it. The fundamental rose strains originating from various climatic regions of Germany, France, and Holland which may be used for crossbreeding with domestic varieties, are described. Musk roses are used in order to develop varieties which have a prolonged flowering time during the dry summer periods. In 1956, the Botanical Garden acquired from the East German Society for Cultural Relations with Foreign Countries, 160 of the newest West European varieties, 63 hybrid tea-rose strains, 38 polyantha, polyantha hybrid, and floribunda varieties, 9

Card : 2/3

USSR/Cultivated Plants - Ornamental. M

Abs Jour : Ref Zhur Biol., No 12, 1958, 53892

Author : Klimenko, V.N.

Inst : Nikitsk State Botanical Garden

Title : New Varieties of Lilac in the Selection of the Nikitsk State Botanical Garden

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad. 1957, No 3-4, 73

Abstract : This article describes 4 lilac varieties selected by the special commission of the Nikitsk State Botanical Garden for propagation of a production scale. The described varieties were part of the 8 varieties selected by N.D. Kostetskiy, which were tried out at the Nikitsk State Botanical Garden after his death. Further mass propagation of the described varieties will be carried on at

Card 1/2

KLIMENKO, V.N.

Biological characteristics of oranges. Biul.Glav.bot.sada no.32:106-110 '58. (MIRA 12:5)

1. Gosudarstvennyy Nikitskiy botanicheskiy sad.
(Orange)

L 09066-67 EWP(e)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/WW/JG/DJ/WH

ACC NR: AP6030609 (A,N) SOURCE CODE: UR/0413/66/000/016/0095/0095

INVENTOR: Rabinovich, L. S.; Sharapov, A. M.; Rubashkin, L. I.; Radomyael'skiy, I. D.; Klimenko, V. N.; Konchakovskaya, L. D.; Stepanenko, G. M.; Kanovalov, V. M.

ORG: none

TITLE: Cermet materials. Class 40, No. 185069 [announced by the Institute of Material Study, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 95

TOPIC TAGS: iron, ~~containing material~~, cast iron, ~~containing material~~, steel, containing material metal ceramic material, cermet

ABSTRACT: This Author Certificate introduces a sintered material containing (for better wear resistance) 60—70% iron powder, 20—30% cast iron powder, and 10—12% steel powder, such as Kh-30 steel powder. This material is used for extending the service life of stators and disks of rotary double-action pumps. [ND]

SUB CODE: 11/ SUBM DATE: 27Jul64/ ATD PRESS: 5077

Card 1/1 nat UDC: 669.018.25:621.762.2

L 04270-67
ACC NR: AP6013298 SOURCE CODE: UR/0413/66/000/008/0091/0091

AUTHORS: Dyban, Ye. P.; Klimenko, V. N.; Rudkin, S. K.; Stradomskiy, M. V.; Khavin, V. Yu.; Shvets, T. I.

ORG: none

TITLE: Apparatus for measuring the temperature of revolving machine details. Class 42, No. 180833 [announced by Institute of Technical Thermophysics, AN UkrSSR (Institut tekhnicheskoy teplofiziki AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 91

TOPIC TAGS: temperature measurement, thermocouple, electromagnet, magnetic circuit, MEASURING INSTRUMENT, MECHANICAL STRESS

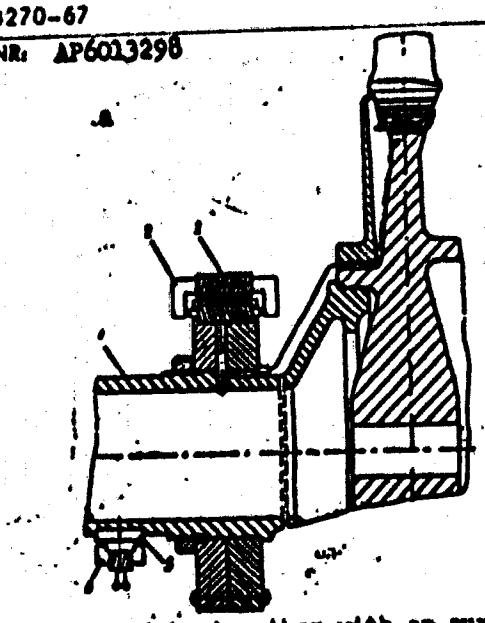
ABSTRACT: This Author Certificate presents an apparatus for measuring the temperature of revolving machine details. The apparatus contains thermocouples fixed on the revolving detail and connected into the chain of movable electromagnets of the induction-type contactless current receivers. The fixed magnets of the latter are connected into a circuit for amplifying and registration of the measured impulses (see Fig. 1). To diminish the influence of the machine shaft displacement and the interference of the nearby electromagnets, the magnetic connections of the fixed magnets are provided with magnetic screens placed on both sides of the connections in parallel to the rotation axis. The shaft carries a spline-like

UDC: 536.532:621-25

Card 1/2

L 04270-67

ACC NR: AP6013298



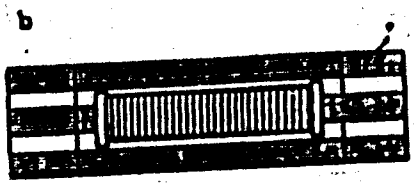


Fig. 1. 1 - machine shaft; 2 - magnetic connection; 3 - fixed electromagnets; 4 - magnetic screen; 5 - spline-like protrusion; 6 - auxiliary magnet

protrusion which, together with an auxiliary magnet, forms a system producing the directing impulses sent to the recording circuit. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 08Feb65

Card 2/2 fv

KLIMENKO, V. N.

18(0,7) PHASE I BOOK EXPLOITATION SOV/2170

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov

Voprosy poroshkovoy metallurgii i prochnosti materialov, vyp. 5 (Problems in Powder Metallurgy and Strength of Materials, Nr 5) Kiyev, Izd-vo AN UkrSSR, 1958. 172p. 2,000 copies printed.

Ed. of Publishing House: Ya. A. Samokhvalov; Tech. Ed.: V.Ye. Sklyarova; Editorial Board: I.N. Frantsevich (Resp. Ed.), I.M. Fedorchenko, G.S. Pisarenko, G.V. Samsonov, and V.V. Grigor'yeva.

PURPOSE: This collection of articles is intended for a wide circle of scientists and engineers in the research and production of powder metallurgy. It may also be useful to advanced students of metallurgical institutes.

COVERAGE: This collection of articles describes the results of investigations made at the Institut metallokeramiki i spetsial'nykh splavov, AN UkrSSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences, Ukrainian SSR). The physical and chemical properties of materials used in powder metallurgy are discussed. Materials described as new, production processes, and methods and results of mechanical testing are described. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

Card 4/6

SOV/137-58-10-20814

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 66 (USSR)

AUTHORS: Grigor'yeva, V.V., Klimenko, V.N., Kosolapova, T.Ya.

TITLE: Chromium Carbide as the Basis for Special-purpose Metal Ceramics (Karbid khroma kak *osnova* dlya *metallokeramicheskikh* materialov s osobymi svoyatvami)

PERIODICAL: V sb.: Vopr. poroshk. metallurgii i prochnosti materialov. Nr 5. Kiyev, AN UkrSSR, 1958, pp 80-89

ABSTRACT: A presentation is made of the results of an investigation of the optimum conditions for the preparation of Cr_3C_2. It is established that use of a 1% excess of carbon black (stoichiometric composition 13.33% C) in the charge, and holding in an H_2 atmosphere at 1600°C for 2 hours in a resistance furnace with a carbon tube makes it possible to produce Cr_3C_2 containing < 3% of the lower carbides (Cr_7C_3 and $Cr_{23}C_6$). Boiling for 3 hours in dilute HCl (1:1) was used to separate the Cr_3C_2 from the lower carbides, in which case the Cr_3C_2 remained in the precipitate. The microhardness of the resultant Cr_3C_2 was 2660-2680 kg/mm^2, which is in good agreement with literature

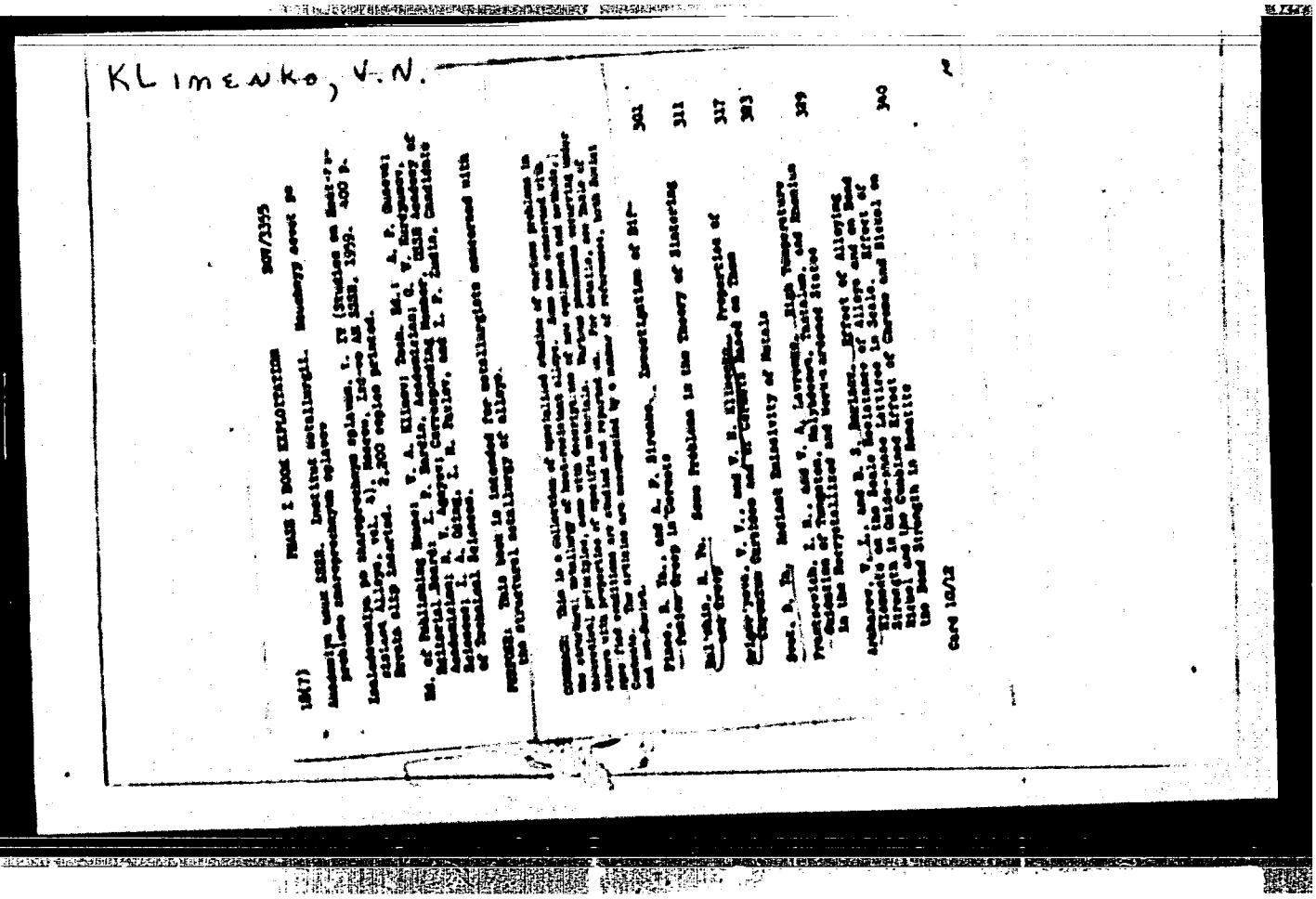
Card 1/2

Chromium Carbide as the Basis for Special-purpose Metal Ceramics

data. The compound Cr_3C_2 +(5-20%) Ni, sintered at >1100°, revealed high mechanical properties: σ_{bi} to 55 kg/mm^2 at room temperature, σ_{bi} up to 70 kg/mm^2 at 950°, R_A 84-89.5. Resistance to oxidation at 950° on the part of materials based on Cr_3C_2 is higher than that of stainless steel. Alloys based on Cr_3C_2 may be utilized wherever hard, corrosion-resistant materials are required.

R.A.

1. Chromium carbide—Preparation 2. Chromium carbide—Separation
3. Chromium carbide—Properties 4. Ceramics—Materials



KLimenko, V.N.

28 (5)
AUTHORS: Klimenko, V. N., Rudenko, V. N.

05750
SOV/32-25-10-39/63

TITLE: Prismatic Edges Made From a Chromium Carbide Alloy for High-temperature Bending Tests

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, p 1248 (USSR)

ABSTRACT: For bending tests at high temperatures (1000-1400°), in which the sample is heated by an electric current passing through it, the prismatic edges used for this purpose must have high resistivity to high temperatures, they must not oxidize, and must retain their high mechanical properties. The material of these prismatic edges must have good temperature- and electric conductivity and must retain its hardness and working temperature. Prismatic edges were produced from a metallo-ceramic alloy on the basis of chromium carbide. The alloy has the following properties: Resistivity to bending up to 1000° - 50 kg/mm^2, tensile strength at 1000° up to 20 kg/mm^2, resistance to compression at room temperature 250-300 kg/mm^2, hardness according to Vickers 1300° and at 1000° - 250 kg/mm^2. Electric conductivity at 20° $1.4 \cdot 10^4$ ohm^{-1}cm^{-1}, thermal conductivity

Card 1/2

05750

Prismatic Edges Made From a Chromium Carbide Alloy for High-temperature Bending Tests SOV/32-25-10-39/63

0.03 cal/cm. sec °C. The prismatic edges may be used for 300 high temperature tests without being re-ground.

ASSOCIATION: Institut metallokeramiki i spetsplavov Akademii nauk USSR (Institute of Cermets and Special Alloys of the Academy of Sciences of the UkrSSR)

Card 2/2

80889

S/126/60/009/06/017/025
B073/B235

18.6100

AUTHORS: Mel'nichuk, P.I., Klimenko, V.N. and Lyashchenko, A.B.

TITLE: Determination of the Modulus of Elasticity of Chromium Carbide-nickel Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 6, pp 918 - 921 (USSR)

ABSTRACT: The authors state that although alloys based on chromium-carbide have useful properties and many applications (Refs 1-4) the properties of this compound have not been studied sufficiently. The present work aimed at providing data on the modulus of elasticity, which are needed for calculating interatomic bond strength (Ref 5) and high-temperature and other strength properties of machine parts (Ref 6). Alloys were prepared from chromium carbide (obtained as described in Ref 1) containing 86.5% Cr, 13.3% C_{total} and 0.3% C_{free}. Six mixtures with 5, 10, 15, 20, 30 and 40% Ni were prepared by grinding the components in ethyl alcohol; 90% of the product was under 5 μ. 100 x 6 x 6 mm test pieces were compressed and sintered at 1 200 - 1 400 °C in a hydrogen atmosphere

Card1/3

Determination of the Modulus of Elasticity of Chromium Carbide-nickel Alloys

and with a covering of alumina powder. Two phase alloys were always obtained (Figure 1). The modulus of elasticity was determined within 0.5% by a dynamic method (Ref 7) as $4/(981 \times 10^{-3})$ of the product of the squares of length (in cm) and natural frequency of longitudinal vibration (c/s) and the density (g/cm^3). The frequency was determined with an apparatus described by Frantsevich and Mel'nichuk (Ref 9) and the density hydrostatically. Density and porosity values are tabulated. The 10% Ni alloy had an anomalously high porosity and its modulus of elasticity lay below the linear plot against nickel content obtained for the other 7 alloys (Fig 2). Based on this linearity the authors propose the following equation for calculating the modulus of elasticity E_c of Cr_3C_2-Ni alloys: $E_c = E_K (1 - 0.0061 K)$, K is the weight % of nickel and E_K the value of the modulus for 0% Ni, found by extrapolating Figure 2 to 0% Ni to be 3.8×10^6 kg/cm^2. They point out the limitations of this equation.

Card2/3

80889

S/126/60/009/06/017/025
E073/E335

Determination of the Modulus of Elasticity of Chromium Carbide-nickel Alloys

There are 2 figures, 1 table and 11 references, 6 of which are Soviet, 1 Czech, 1 English and 3 German.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Cermets and Special Alloys Institute of the Ac.Sc. Ukrainian SSR)

SUBMITTED: January 23, 1960

Card 3/3

68592

S/136/60/000/01/013/021
E091/E255

18.6100

AUTHORS: Grigor'yeva, V. V., and Klimenko, V. N

TITLE: Hard Chromium Carbide Alloys

PERIODICAL: Tsvetnyye metally, 1960, 33, Nr 1, pp 67-70 (USSR)

ABSTRACT: Among the metal carbides, chromium carbide is distinguished by an exceptional resistance to oxidation and by a small specific weight. Chromium forms three carbides which differ in their structure and properties. A few properties of chromium carbides are shown in Table 1. At the Institute of Powder Metallurgy and Special Alloys, Ac. Sc. Ukr SSR, new hard alloys have been developed and used successfully. They have chromium carbides as bases and nickel or nickel alloys as binders (Refs 4 to 6). Chromium carbide hard alloys are manufactured from Cr_3C_2 and Cr_7C_3 made of a mixture of chromic oxide and carbon black. The mixture of quenched and thoroughly-mixed materials weighed out in stoichiometric ratios is briquetted; the briquettes are placed in a carbon case which is transferred to a furnace with an angular tube through which hydrogen is passed. The case with the mixture is heated slowly to a given temperature, held there for 1.1/2 to 2 hours, and then pushed into a refrigerator. To obtain Cr_3C_2

Card 1/3

Hard Chromium Carbide Alloys

the soaking temperature should be 1600°C, and for the production of Cr_7C_3 it should be 1400°C. The chromium carbide thus obtained is milled in a ball mill and sieved. The chromium carbide alloys are supplied as bricks, billets or finished articles (Fig 1). The mixture of chromium carbide powders and nickel or a nickel alloy is compressed and the articles thus obtained are sintered at a high temperature in a controlled atmosphere. The nickel or nickel alloy content is between 5 and 40%, the rest being chromium carbide. The structure of the chromium carbide alloy consists of carbide grains surrounded by a nickel-chromium alloy (Fig 2). Chromium carbide alloys possess (1) great hardness at room temperature and elevated temperatures (90 R_A at room temperature and 20 kg/mm² at 1100°C) (see Fig 3); (2) an excellent resistance to oxidation in air up to 1100°C; (3) good corrosion resistance in acids, bases, sea water, petroleum products and other active media; (4) good resistance to abrasive wear, and (5) good resistance against erosion. The specific weight of a chromium carbide alloy is 7 g/cm³,

Card 2/3

Hard Chromium Carbide Alloys

ie this alloy is twice as light as tungsten carbide hard alloys. The UTS of chromium carbide alloys in bending is 70 kg/mm^2; at 1000°C it is 40 kg/mm^2; in compression at room temperature it is above 300 kg/mm^2. The alloys are non-magnetic: their mean coefficient of linear expansion in the temperature range 20 to 800°C is close to that of steel, ie (11 to 12) x 10^{-6} mm/deg. The thermal conductivity of an alloy containing 15% metal is 0.03 cal $cm^{-1}sec^{-1}deg^{-1}$ and the electrical conductivity at 20°C is 1.4 x 10^4 $ohm^{-1}cm^{-1}$. The alloys can be silver-soldered to steel. The compositions of solders recommended for this purpose are shown in Table 2 (Ref 4). The alloys take an excellent polish and keep it on heating to high temperatures. Mechanical working to complicated shapes is possible after pressing and sintering of the billets or briquettes at 900 to 1000°C. There are 4 figures, 2 tables and 6 references, 4 of which are Soviet and 2 English.

ASSOCIATION: Institut metallokeramiki i spetsplavov AN UkrSSR (Institute of Powder Metallurgy and Special Alloys, Ac. Sc. UkrSSR)

KLYMENKO, V.N.

PHASE I BOOK EXPLOITATION SOV/5915

Hryhor'yeva, Vera Vsevolodivna, and Vyktor Nykolayevych Klymenko

Splavy na osnovi karbidu khromu (Chromium Carbide-Base Alloys) Kiyev, Vydavn. Akademiyi nauk Ukr. RSR, 1961. 54 p. 1500 copies printed.

Sponsoring Agency: Akademiya nauk Ukrayins'koyi RSR. Instytut metalokeramiky i spetsial'nykh splaviv.

Resp. Ed.: G. V. Samsonov, Doctor of Technical Sciences; Ed. of Publishing House: I. V. Kisina; Tech. Ed.: T. R. Liberman.

PURPOSE: This booklet is intended for technical and scientific research personnel working in the machine-building and chemical industries.

COVERAGE: The booklet discusses the process of manufacturing the chromium carbide-base hard alloys and indicates the fields of their application. These alloys are also examined from the

Card 1/3

standpoint of their corrosion resistance in various media, oxidation resistance, abrasive wear resistance, and strength at room temperatures and elevated temperatures. Examples are given for the use of these alloys in wear-resistant parts, such as nozzles, tube-drawing dies, and forming dies. No personalities are mentioned. There are 54 references: 25 Soviet, 18 English, 7 German, 2 Czech, 1 French, and 1 Japanese.

TABLE OF CONTENTS:

Chromium Carbide-Base Alloys SOV/5915

Application of Chromium Carbide Alloys 44

Bibliography 54

AVAILABLE: Library of Congress (TN693.C55H7)

SUBJECT: Metals and Metallurgy

Card 3/3 DV/wrc/jw
3/22/62

32784
S/137/61/000/012/057/149
A006/A101

15 2 [redacted] P 1116 1521

AUTHOR: Klimenko, V.N.

TITLE: High-temperature oxidation of carbide-chrome alloys

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 43, abstract 120306 ("Poroshk. metallurgiya", 1961, no. 2, 93 - 100, English summary)

TEXT: Cr_3C_2+5-92% Ni alloys were air-oxidized at 1,050°C. Highest stability (at 80 hour holding) was revealed in alloys with 15% Ni, which is connected with the formation in this case of $NiO.Cr_2O_3$ spinellide phase. Specimens sintered in H_2 show higher corrosion resistance than vacuum sintered specimens. It is assumed that in the latter case Cr evaporation prevents the formation of protective films. An increase in the content of lower carbides (Cr_7C_3 and $Cr_{23}C_6$) causes higher scale resistance of Cr_3C_2-Ni alloys. This is due to the stronger dissolving of lower carbides in Ni. There are 10 references. X

R. Andriyevskiy

[Abstracter's note: Complete translation]

Card 1/1

S/137/62/000/001/066/237
A060/A101

AUTHORS: Dorf, Z. P., Klimenko, V. N., Radomysel'skiy, I. D., Shub, I. Ye.

TITLE: The requirements of the Leningrad sovnarkhoz industry for metallo-ceramic articles, and the economic efficiency of their introduction

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 42, abstract 10321 ("Poroshk. metallurgiya", 1961, no. 3, 100-110, English summary)

TEXT: An inspection of 100 enterprises of the Leningrad sovnarkhoz has brought to light the requirements for metallo-ceramic articles numbering 44.3 million pieces with total weight 2,746 tons (1,109 denominations). Of all the forms of metallo-ceramic articles the share of structural materials is ~66%, magnetic - ~24%, antifriction - ~6%. The requirements for metallo-ceramic articles for 1965, constituting 4,915 tons, is also determined. Recommendations are cited on the organization of the metallo-ceramic production at various Leningrad enterprises. The economic aspect of the industrial application of articles fabricated by the methods of powder metallurgy is analyzed. The nominal yearly saving on account of the introduction of powder materials constitutes >3 million rubles. In Leningrad the introduction of every thousand tons of

Card 1/2

The requirements of the Leningrad ...

of metallo-ceramic articles is accompanied by a saving of 1.6 million rubles, 2.6 thousand tons of metal, and 260 workers and 152 metal cutting machines are freed.

R. Andriyevskiy

[Abstracter's note: Complete translation]

KLIMENKO, V.N.

High-temperature oxidation of chromium carbide alloys. Porosh. met. 1 no.2:93-100 Mr-Ap '61. (MIRA 15:5)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(POWDER METALLURGY) (OXIDATION)

KLIMENKO, V.N.; RADOMYSEL'SKIY, I.D.; DORF, Z.P.

Department for the manufacture of ceramic-metal instrument parts. Porosh.met. 2 no.1:80-87 Ja-F '62. (MIRA 15:8)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Instrument manufacture) (Ceramic metals)

ACCESSION NR: AP4029204 S/0226/64/000/002/0032/0039

AUTHOR: Boyko, P. A.; Gryaznov, B. A.; Dubinin, V. P.; Klimenko, V. M.; Fur'menko, V. A.; Osasyuk, V. V.; Radomyssel'skiy, I. D.; Rudenko, V. N.

TITLE: Investigation of the properties of N32D4 high-alloy nickel-copper powder-metal steel

SOURCE: Poroshkovaya metallurgiya, no. 2, 1964, 32-39

TOPIC TAGS: N32D4 steel, high alloy steel, nickel copper steel, powder metal steel, copper containing alloy, nickel containing alloy

ABSTRACT: The authors investigate subject properties manufactured by two technological variations. It was shown that the higher pressures of the first pressing and temperature of the first sintering raises the density of the manufactured samples only slightly and has little affect on the strength characteristics in static tests. These results are presented in tables and graphs. In dynamic tests (resiliency, ultimate strength) there is a considerable decrease in the strength of the samples manufactured by the second technological variation which is associated with an increased sensitivity of the dynamic strength characteristics of porosity microheteroganeity in composition which is higher in the samples subjected to a first

Card 1/2